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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/542,649

07/19/2005

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EXAMINER

PHAN, THIEM D

ART UNIT

PAPER NUMBER

3729

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/542,649	<b>Applicant(s)</b> ITO ET AL.	
	<b>Examiner</b> THIEM PHAN	<b>Art Unit</b> 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 1-14, 20-26 and 28-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-19, 27 and 46-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/15/08 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The amendment filed on 1/15/08 has been fully considered and made of record.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 46, 48 and 50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants are requested to specifically delineate what is included and excluded by the term "... identical number of substantially solid layers." and the like language. Throughout the specification, applicants have failed to specifically define them.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 46, 48 and 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The claimed language "...identical number of substantially solid layers." is confusing and unclear. This language not only is held to be vague and indefinite,

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the metes and bounds or scope of the claimed subject matter cannot be determined in the disclosure.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 15-18, 27 and 46-51 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakamoto et al (US 6,281,446).

**Regarding claim 15**, Sakamoto et al teach a method of manufacturing a multi-layered circuit board, comprising:

- laminating a base material (Fig. 7A, 16) having a wiring circuit (Fig. 7A, 21) which is formed into a predetermined outer shape with one front surface of a motherboard (Fig. 7B, 11).

**Regarding claim 16**, Sakamoto et al teach a method of manufacturing a multi-layered circuit board, comprising:

- forming a wiring circuit (Figs. 4A-5B, 13a & bottom end of 11) on at least one of a front surface and a rear surface of the motherboard (Fig. 5B, 11);
- making a via hole (Fig. 5B, 15); and
- laminating a base material (Figs. 6A-7B, 16) having a wiring circuit (Fig. 6B, 18) which is formed into a predetermined outer shape.

**Regarding claim 17**, Sakamoto et al teach that an outer shape of the base material (Fig. 7A, 16) having a wiring circuit (Fig. 7A, 18) is smaller than the outer shape of the motherboard (Fig. 7A, 11).

**Regarding claim 18**, Sakamoto et al teach the forming of a cover layer (Fig. 4A, 39) having an opening (Figs. 4A-7B, 15a) for positioning the base material (Fig. 7A, 16) having a wiring circuit (Fig. 7A, 18) prior to the operation of laminating (Figs. 7A & 7B, 16 & 11) the base material having a wiring circuit with the motherboard.

**Regarding claim 27**, Sakamoto et al teach the laminating of a base material with single-sided wiring circuit (Fig. 12A, 19b), which is formed into a predetermined outer shape (Fig. 13A, 33) to one frontal surface of the motherboard (Fig. 13A, 31).

**Regarding claims 46, 48 and 50**, as best understood, Sakamoto et al teach a motherboard or base board (Fig. 1, 11a) with identical number of substantially solid layers.

**Regarding claims 47, 49 and 51**, Sakamoto et al teach that the location of the base material (Fig. 7A, 16) is dictated by the circuit layout (Fig. 7A, 22) of the motherboard (Fig. 7A, 11).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al.

**Regarding claim 19**, Sakamoto et al teach a method of manufacturing a multi-layered circuit board including the laminating of the base material (Fig. 1, 16) having a wiring circuit (Fig. 1, 18) with the motherboard (Fig. 1, 11), the filling up of the cavity (Fig. 1, 15; col. 5, lines 12-16) with resin, which reads on applicants' claimed invention; except for forming a cover layer for coating the motherboard and the base material.

It would be obvious to one of ordinary skill in the art at the time the invention was made to form a cover layer for coating the motherboard and the base material, since it is known in the art that the process is to make a printed circuit board safe from the environment (Col. 4, line 4) and that a printed circuit board must always be covered with a silkscreen layer at the two front and rear exposed surfaces, except at the contact pads for soldering or connector insertion, to protect against flux during reflow and contaminants from environment.

### ***Response to Arguments***

10. Applicants' arguments filed on 1/15/08 have been fully considered but they are not persuasive for the following reasons:

Applicants assert that the prior art Sakamoto et al do not teach nor suggest the limitation of "laminating" and "laminating a carrier board to the motherboard" (Remarks, page 22, top paragraph). In response to these arguments, the term "laminating" is construed as bonding different layers together and Sakamoto et al do teach the bonding of different layers of the base material (Fig. 1, 16) to the motherboard (Fig. 1, 11) by the solder balls (Fig. 1, 23) and the sealing resin (Col. 4, lines 11-16).

It appears that applicants fail to recognize the scope of the claims when judged in view of Sakamoto et al. (See MPEP 2111 and *In re Geuns*, 26 USPQ 2<sup>nd</sup> 1057 (Fed. Cir. 1993)).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Applicants' amendment necessitated some new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 571-272-4568. The examiner can normally be reached on M & Tu, 6AM - 2PM, and W & Th, 9AM – 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tim Phan  
Examiner  
Art Unit 3729

/A. Dexter Tugbang/  
Primary Examiner  
Art Unit 3729

tp  
April 5, 2008